

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated August 12, 2005. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1-7 are under consideration in this application. Claims 1-7 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim applicants' invention.

The claims are being amended to correct formal errors and/or to better recite or describe the features of the present invention as claimed. All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejection

Claims 1, 2, 4 and 6 were rejected under 35 U.S.C. § 102(e) as being anticipated by US. Pat. App. Pub. No. 2003/0135685 of Cowan (hereinafter "Cowan"), and claims 3 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cowan. Furthermore, the Examiner rejected claim 7 as being unpatentable over Cowan in view of US. Pat. No. 6,810,462 to Matsunami et al. (hereinafter "Matsunami"). The prior art references of Ido et al. (2004/0128453), LeCrone et al. (6,910,098), Baxter III (6,865,643) and Fish et al. (4,241,420) were cited as being pertinent to the present application. The rejections have been carefully considered, but are most respectfully traversed in view of the newly submitted claims, as more fully discussed below.

As now recited in the claim 1 (for example, the embodiment shown in Figs. 1 & 4; p. 25), the storage control system 13 of the invention which is connected to a host apparatus 1 and a maintenance terminal SVP 11, comprises: one or more channel adapters 35 to be a communication interface with respect to the host apparatus 1; one or more host data storages 3 in which data from the host apparatus 1 is stored; one or more disk adapters 43 to be a communication interface with respect to the one or more host data storages 3; one or more operation information storage memories SM 39 in which operation information of the storage

control system 13 is stored; and a memory connection section 32 for connecting the maintenance terminal 11 to the operation information storage memory 39. The maintenance terminal 11 has a disk type storage HDD 7 (p. 12, lines 3-8). The operation information is information that represents an operation state of the storage control system 13 during the storage control system operation, and is used for management of the storage control system 13 (p. 2; lines 1-3). One or more channel processors CHP 36 are mounted to the respective channel adapters 35. One or more disk processors DKP 44 are mounted to the respective disk adapters 43. The respective channel processors 36 and the respective first disk processors 44 store operation information in the one or more operation information storage memories 39 asynchronously with timing at which the operation information read out from the one or more operation information storage memories (p. 27). The storage control system 13 outputs the stored operation information directly to the maintenance terminal 11 via the memory connection section 32. The maintenance terminal 11 receives the operation information from said one or more operation information storage memories 39, and stores the received operation information in the disk type storage HDD 7 of the maintenance terminal 11 (p. 25, lines 21-27).

First of all, Cowan merely involves "address mapping" which is essentially differently from the "operation information" as now recited and defined in claim 1.

The "operation information" according to the invention is information that represents an operation state of the storage control system during the storage control system operation. Examples of the "operation information" are described in p. 13, line 16 to p. 24, line 25. Further, the "operation information" according to the invention is used for the management of the storage control system 13. And, the "operation information" according to the invention is frequently stored. As a result, the "operation information" according to the invention amounts to several mega byte (MB) in several minutes so as to amount to enormous information amount in several hours.

On the other hand, Cowan's "address mapping" involves information corresponding an I/O virtual address to a physical memory address thereby translating I/O addresses. Therefore, Cowan's "address mapping" is not "operation information" according to the invention.

Secondly, Cowan's "processor" of Fig 3 (which does not have any disk type storage) is different from the maintenance terminal 11 of the invention which has a disk type storage HDD 7.

Third, Cowan only discloses "one or more disk processors are mounted to the respective disk adapters," rather than "one or more channel processors are mounted to the respective channel adapters" of the invention.

Fourth, Cowan simply does not disclose "the respective channel processors and the respective disk processors store operation information in the one or more operation information storage memories "asynchronously with timing at which the operation information is output to the maintenance terminal"" as the invention.

Fifth, Cowan's "address mapping" remains in TLB 320 since the "address mapping" is used for controlling I/O address translation, rather than "outputted directly to the maintenance terminal". As such, Cowan's alleged maintenance terminal/ processor does NOT receive the operation information from the one or more operation information storage memories, or stores the operation information in the disk type storage of the maintenance terminal.

The invention of claim 2 (for example, the embodiment shown in Figs. 6-7; pp. 27-28), is also directed to a storage control system 1 which includes all elements recited in claim 1 except "the memory connection section 32 for connecting the maintenance terminal 11 to the operation information storage memory 39", "the storage control system 13 outputs the stored operation information directly to the maintenance terminal 11 via the memory connection section 32" and "the maintenance terminal 11 receives the operation information from said one or more operation information storage memories 39, and stores the received operation information in the disk type storage HDD 7 of the maintenance terminal 11". Instead, this embodiment includes: one or more operation information disk type storages 59 (Fig. 6; p. 27, lines 19-22) in which operation information of the storage control system 13 is stored; one or more second disk adapters 43D to be a communication interface with respect to the one or more operation information storages 59, said second disk adapters 43D read out the stored operation information from the one or more operation information storage memories 39 to store the operation information in the one or more operation information disk type storages 59. In addition, "the storage control system 13 outputs the stored operation information from the one or more operation information disk type storages 59 to the maintenance terminal 11", and "the maintenance terminal 11 receives the operation information from the one or more operation information storage memories 39, and displays information based upon the received operation information without storing the operation

information in the disk type storage HDD 7 of the maintenance terminal 11 (p. 28, third paragraph)”).

In contrast, besides the relevant discussions above as applied to claim 1, Cowan’s “address mapping” remains in TLB 320 since the “address mapping” is used for controlling I/O address translation, rather than “outputted from the one or more operation information disk type storages 59 to the maintenance terminal 11”. As such, Cowan’s alleged maintenance terminal/ processor does NOT receives the operation information from the one or more operation information storage memories, or display information based upon the operation information without storing the operation information in the disk type storage of the maintenance terminal.

Matsunami was relied upon by the Examiner to teach claim 7. However, Matsunami fails to compensate for Cowan’s deficiencies regarding claims 1-2 as discussed above.

Applicants contend that neither Cowan, Matsunami, nor their combinations teaches or discloses each and every feature of the present invention as disclosed in independent claims 1-2. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

Conclusion

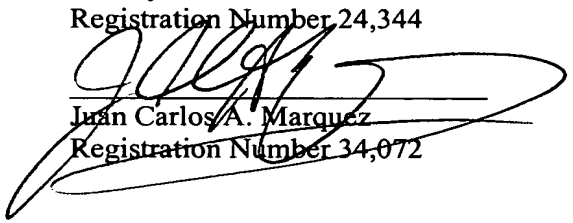
In view of all the above, clear and distinct differences as discussed exist between the present invention and the prior art references upon which the rejections in the Office Action rely, Applicant respectfully contends that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance

of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and telephone number indicated below.

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